

DESIGN FEATURES OF THE NEYK SUBMARINE

NEYK SUBMARINE started developing a completely new generation of single-hull, deep-diving, multi-role, tactical submarines under the name NEYK. Advanced technologies are combined as in no other submarine, all designed to produce the best combination possible in a submarine that is smaller, lighter and simpler than present designs, but has far greater manoeuvrability and combat capability. The NEYK design is revolutionary in many ways. The design emphasizes the following characteristics:

- Deep diving capacity
- Manoeuvrability as great as possible
- Low noise signature at the highest possible speed
- A high shock resistance
- High visibility
- High levels of comfort
- Low hydrodynamic drag
- Variable power
- Integrated control and monitoring systems
- Multi-functional periscope
- Modular design

TEST PROGRAM

NEYK SUBMARINE spent two years on the test program, developing an ultramodern teardrop body by using a range of aids from PCs right up to supercomputers. The next stage was to test ten models in a development program. Three models were used in manoeuvring simulators, a high-speed towing tank and deep water towing tanks to test the moving dynamic forces which come into play in addition to the static forces (weight and buoyancy), the dynamic forces produced by the submarine's hull shape and from the action of the rudders and the fore and aft hydroplanes, which control the submarine's position and motion in the horizontal and vertical planes respectively.

When testing the electric propulsion system many tests are conducted to discover the optimum position for the engines. The engines are suspended on either side and, if they are run in opposite directions, the submarine can turn on its axle within a few seconds. Because the engines are positioned forward of the diving rudders the submarine can dive very rapidly. This configuration is ten times more effective than the conventional cruciform design. The streamlined parts of the engines are also teardrop-shaped and give 5% more efficiency and extra cooling for the electric motors at low speeds.

The bow and stern thrusters plus the two vertical thrusters in the conning tower have also been tested, thus providing full-scale hovering and dynamic positioning capabilities in confined areas.

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